

**Amendments to and Listing of the Claims:**

Please *amend claims 1-11* and *cancel claims 12-22*, all without prejudice, as shown below in the following listing of all claims ever presented. The following listing of claims replaces all prior versions thereof.

1. (Currently amended) An article comprising a substrate having a surface and a tantalum film having a nanocrystalline microstructure as characterized by a broad x-ray diffraction peak at  $2\theta=38^\circ$  and continuous electron diffraction rings, wherein the tantalum film is formed directly on the surface of the substrate.

2. (Currently amended) The ~~tantalum-film~~ article of claim 1, wherein the tantalum is  $\alpha$ -tantalum.

3. (Currently amended) The ~~tantalum-film~~ article of claim 1, having a resistance of 30-50  $\mu\Omega$  cm.

4. (Currently amended) The ~~tantalum-film~~ article of claim 1, having a net diffusion distance of less than 10 nm after annealing with copper at a temperature between 650°-750° C for 1 hour.

5. (Withdrawn-Currently amended) An article comprising a substrate having a surface and a tantalum film having a single crystal microstructure as characterized by an x-ray diffraction peak at  $2\theta=55^\circ$  and characteristic (100) spot diffraction pattern, wherein the tantalum film is formed directly on the surface of the substrate.

6. (Withdrawn-Currently amended) The ~~tantalum-film~~ article of claim 5, wherein the tantalum is  $\alpha$ -tantalum.

7. (Withdrawn-Currently amended) The ~~tantalum film~~ article of claim 5, having a resistance of 15-30  $\mu\Omega$  cm.

8. (Withdrawn-Currently amended) The ~~tantalum film~~ article of claim 5, having a net diffusion distance of less than 10 nm after annealing with copper at a temperature between 650°-750° C. for 1 hour.

9. (Withdrawn-Currently amended) An article comprising a substrate having a surface and a A tantalum film having an amorphous microstructure as characterized by a diffuse x-ray diffraction peak at  $2\theta=30-35^\circ$  and a diffuse ring in the electron diffraction pattern, wherein the tantalum film is formed directly on the surface of the substrate.

10. (Withdrawn-Currently amended) The ~~tantalum film~~ article of claim 9, having a resistance of 250-275  $\mu\Omega$  cm.

11. (Withdrawn-Currently amended) The ~~tantalum film~~ article of claim 9, having a net diffusion distance of less than 10 nm after annealing with copper at a temperature between 650°-750° C. for 1 hour.

12-22. (Canceled)

23. (Original) A microelectronic device having a silicon substrate, a tantalum film deposited on the silicon substrate and a copper layer disposed on the tantalum film, wherein the tantalum film has an amorphous microstructure.

24. (Original) A microelectronic device having a silicon substrate, a tantalum film deposited on the silicon substrate and a copper layer disposed on the tantalum film, wherein the tantalum film has a nanocrystalline microstructure.

25. (Withdrawn) A microelectronic device having a silicon substrate, a tantalum film deposited on the silicon substrate, and a copper layer disposed on the tantalum film, wherein the tantalum film has a single crystal microstructure.

26. (Withdrawn) The device of claim 25, wherein the device has a buffer layer of TiN or TaN deposited between the silicon substrate and said tantalum film.

27-28. (Canceled)